



U.S. Department
of Transportation

400 Seventh Street, S.W.
Washington, D.C. 20590

Research and
Special Programs
Administration

SEP 10 2004

DOT-E 11777
(ELEVENTH REVISION)

EXPIRATION DATE: May 31, 2006

(FOR RENEWAL, SEE 49 CFR § 107.109.)

1. GRANTEE: Autoliv ASP, Inc.
Ogden, UT

2. a. PURPOSE AND LIMITATION:

a. This exemption authorizes the manufacture, marking, sale and use of non-DOT specification pressure vessels for use as components of automobile vehicle safety systems. The pressure vessels, charged with non-toxic, non-liquefied gases, are authorized for transportation in commerce subject to requirements and limitations specified herein. This exemption provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein.

b. FIVE YEAR TRANSPORTATION AUTHORIZATION: This exemption authorizes transportation of the pressure vessels identified herein for up to five years from the date of manufacture. This exemption provides no certification of safety for end use environments and life cycles.

c. EXEMPTION SCOPE LIMITATIONS: This exemption only applies to a package when it is an article of commerce in transportation. The safety analyses performed in development of this exemption only considered the hazards and risks associated with transportation in commerce. The safety analyses did not consider the hazards and risks associated with consumer use, incorporation as a component of a vehicle or other device, or other uses not associated with transportation in commerce.

SEP 10 2004

3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 172.203(a) in that marking the exemption number on the shipping paper is waived; 172.301(c) in that marking the exemption number on the package is waived; 173.301a(a)(1), and 173.302a(a)(1) in that non-DOT specification pressure vessels are not authorized except as provided herein.
5. BASIS: This exemption is based on the application of Autoliv ASP, Inc. dated May 21, 2004, submitted in accordance with § 107.109
6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Proper Shipping Name Hazardous Materials Description --	Hazard Class/ Division	Identification Number	Packing Group
Air bag inflators, or air bag modules, or Seat-belt pretensioner ¹	1.4G	UN0503	II
Air bag inflators, or air bag modules, or Seat-belt pretensioner ¹	9	UN3268	III
Air bag inflators, compressed gas or Air bag modules, compressed gas or Seat-belt pretensioners, compressed gas ^{1*}	2.2	UN3353	N/A

¹A vehicle safety system or component which contains a quantity of pyrotechnic materials must be classed and approved as provided for in § 173.56 of the Hazardous Materials Regulations (HMR). If the pyrotechnic material augments the volume of the gas in the pressure vessel, or in any way enhances the performance of the compressed gas, the device must be tested in the same configuration as when shipped.

* The use of this hazardous material description may be used until September 30, 2004.

SEP 10 2004^{e 3}

7. SAFETY CONTROL MEASURES: Packaging prescribed is a non-DOT specification pressure vessel meeting the following requirements:

a. PACKAGING:

(1) The maximum service pressure at 70°F may not exceed 5000 PSIG. The minimum test pressure is the pressure of the contents at 200°F. The rated service pressure may not exceed 80 percent of the test pressure and the water volume of each pressure vessel may not exceed one liter. The pressure vessels may be cylindrical or of any other shape approved by the Independent Inspection Agency (IIA). Unless otherwise specified herein, the referenced sections of 178.65 citing cylinders must also apply to these pressure vessels of other shapes.

(2) Material of construction must conform to all requirements of § 178.65(b).

(3) Manufacturing requirements must conform to all requirements of § 178.65(c).

(4) The minimum wall thickness must be such that the wall stress meets the requirements of § 178.65(d). Calculations of the stress for non-cylindrical pressure vessels must be made at the most critical location using a suitable analysis technique approved by the IIA.

(5) Openings and attachments for cylindrical pressure vessels must conform to the requirements of § 178.65(e), except that sidewall attachments as shown on Autoliv AB drawing 576061400 dated December 18, 1998 on file with the Office of Hazardous Materials Exemptions and Approvals are authorized. Openings and attachments for non-cylindrical pressure vessels must conform to the requirements of §§ 178.65(e)(3) and (4).

(6) Each pressure vessel must be equipped with a pressure relief device designed to meet all the requirements for a rupture disk prescribed in the Compressed Gas Association (CGA) Pamphlet S-1.1. The pressure relief device shall be capable of preventing rupture of the pressure vessel when subjected to fire test conducted in accordance with CGA Pamphlet C-14.

SEP 10 2004

(7) Pressure vessels, components, and vehicle safety systems must be transported in strong outside packaging in accordance with § 173.301(k).

b. TESTING:

(1) Each pressure vessel must be tested as required in § 178.65(f) except that -

(i) the hold time at test pressure specified in § 178.65(f)(1) may be limited to that which is adequate to ensure compliance with the requirements contained in § 178.65(f)(1), and

(ii) For cylindrical pressure vessels, the failure modes of § 178.65(f)(2)(i), (ii) and (iii) apply. For non-cylindrical pressure vessels, the failure modes of § 178.65(f)(2)(i), (ii), and (iv) apply.

(iii) The maximum duration of the shift specified in § 178.65(f)(3) may be extended beyond 10 hours at the discretion of the independent inspector.

(2) The flattening test specified in § 178.65(g) is not required.

(3) A representative vehicle safety system, packaged as it would be for shipment, must be activated and no materials other than non-toxic, non-flammable vapors or gases may be expelled from the package.

c. MARKING:

Each pressure vessel must be durably marked as follows:

DOT E-11777/5000¹

lot No. xxxxx²

Manufacturer's Name

This Pressure Vessel May Not Be Refilled

¹ Where 5000 represents the design service pressure.

² Where xxxxx is the lot number as appropriate.

Note: Each line of these markings may be placed without regard to location or order on the pressure vessel.

SEP 10 2004

8. SPECIAL PROVISIONS:

a. This exemption is limited to pressure vessels used as components of a vehicle safety system. The pressure vessels are excepted from the requirements of the HMR, Part 178 when the design has been certified by an IIA, approved under § 173.803 as having met all the requirements of this exemption.

b. The IIA's certification must include test results and documents related to explosive classification and approval. A copy of the certification must be maintained at each facility where the vehicle safety system is manufactured and by the IIA for a period of 15 years from the date of completion of the design certification.

c. Persons who receive the packages covered by this exemption may reoffer them for transportation provided no modification or changes are made to the packages, all terms of this exemption are complied with and a current copy of this exemption is maintained at each facility from which such reoffering occurs.

d. Autoliv ASP, Inc. must comply with all provisions of this exemption, and all other applicable requirements contained in the HMR, Parts 171-177. No modifications may be made to the pressure vessel, pyrotechnic components or production vehicle safety system which would affect the performance of the vehicle safety system or its compliance with the requirements of this exemption until such modifications have been reviewed, tested and certified by an Independent Inspector as meeting the requirements of this exemption.

e. Devices utilizing the non-DOT specification pressure vessel authorized herein are exempt from the requirements of 49 CFR Parts 100-185 when installed in a motor vehicle or in completed vehicle components such as steering columns or door panels.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight, cargo vessel, passenger-carrying aircraft (may not exceed the quantity limitation specified in § 172.101, column 9A), and cargo aircraft only.

This exemption is to serve as an authorization of The Competent Authority for the United States (CA-9702016) in accordance with the General Packing Instructions Part 3, Chapter 2, Paragraph 2.5 of the International Civil Aviation

SEP 10 2004

Organization Technical Instructions (ICAO TI) and additionally meets the requirements of State Variation US 6. Pressure vessels or vehicle safety systems complying with this exemption are authorized to be shipped pursuant to Packaging Instructions 200 or 917 of ICAO TI.

10. MODAL REQUIREMENTS: A current copy of this exemption must be carried aboard each cargo vessel and aircraft used to transport packages covered by this exemption. The shipper must furnish a current copy of this exemption to the air carrier before or at the time the shipment is tendered.
11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this exemption and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:
- o All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, Parts 171-180.
 - o Persons operating under the terms of this exemption must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
 - o Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this exemption must receive training on the requirements and conditions of this exemption in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this exemption, including display of its number, when this exemption has expired or is otherwise no longer in effect.

12. REPORTING REQUIREMENTS: The carrier is required to report any incident involving loss of packaging contents or packaging failure to the Associate Administrator for Hazardous Materials Safety (AAHMS) as soon as practicable.

SEP 10 2004

(Sections 171.15 and 171.16 apply to any activity undertaken under the authority of this exemption.) In addition, the holder(s) of this exemption must also inform the AAHMS, in writing, as soon as practicable of any incidents involving the package and shipments made under this exemption.

Issued in Washington, D.C.:



Robert A. McGuire
Associate Administrator for
Hazardous Materials Safety

SEP 10 2004

(DATE)

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, Department of Transportation, Washington, D.C. 20590. Attention: DHM-31.

Copies of this exemption may be obtained by accessing the Hazardous Materials Safety Homepage at <http://hazmat.dot.gov/exemptions> Photo reproductions and legible reductions of this exemption are permitted. Any alteration of this exemption is prohibited.

PO: sln